

ABSTRACT

An imaging device formed as a CMOS semiconductor integrated circuit includes a nitrogen containing insulating material beneath a photogate. The nitrogen containing insulating material, preferably be one of a silicon nitride layer, an ONO layer, a nitrode/oxide layer and an oxide/nitrode layer. The nitrogen containing insulating layer provides an increased capacitance in the photogate region, higher breakdown voltage, a wider dynamic range and an improved signal to noise ratio. The invention also provides a method for fabricating a CMOS imager containing the nitrogen containing insulating layer.